AD-A037 704 NATIONAL MILITARY COMMAND SYSTEM SUPPORT CENTER WASH--ETC F/G 15/6
SIMULATION FOR THE ASSESSMENT OF TACTICAL NUCLEAR WEAPONS (SATA--ETC(U)
MAR 77 M LAUTZENHEISER, C D SEEFELDT

UNCLASSIFIED NMCSSC-CSM-UM-202-75-CH-2 NL

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WASHINGTON, D. C. 20301

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TO: RECIPIENTS

SUBJECT: Change 2 to Users Manual CSM UM 202-75

1. Insert the enclosed change pages and destroy the replaced pages according to applicable security regulations.

2. A list of Effective Pages to verify the accuracy of this manual is enclosed. This list should be inserted before the title page.

3. When this change has been posted, make an entry in the Record of Changes.

FOR THE DIRECTOR:

J. DOUGLAS POTTER
Asst. to the Director
for Administration

67 Enclosures
Change 2 Pages

(6) Simulation for the Assessment of Tactical Nuclear Weapons (SATAN III). Users Manual,
(10) M. /Lautzenheiser, C. D. /Seefeldt, W. B. /Bales W. J. /McNeice
(15) DCA100-74-C-0007
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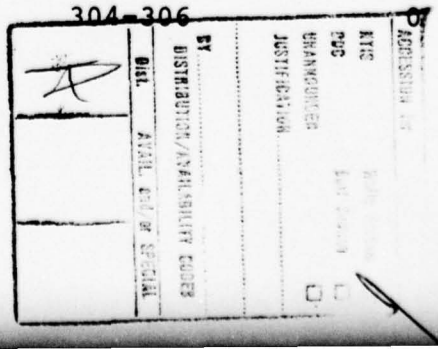
EFFECTIVE PAGES - 1 September 1976

This list is used to verify the accuracy of CSM UM 202-75 after change 2 pages have been inserted. Original pages are indicated by the letter 0, and change 1 pages by the numeral 1, and change 2 pages by the numeral 2.

Page No.	Change No.	Page No.	Change No.
Title Page	0	47.1	1
ii	1	48-55	0
iii	0	56	2
iv	1	57	0
v	1	58-59	1
vi	1	60-62	0
vii	0	63-64	1
viii	1	65-66	0
ix	1	67-69	1
x	2	69.1	1
xi	1	70	1
1-6	2	71	0
6.1	2	72-74	1
7	2	75-76	2
7.1	2	77-81	0
8	2	82-85	1
9	0	86	2
10-11	1	87-91	1
12	0	92	2
13-14	1	93-96	1
15	0	97-98	0
16-17	1	99	1
18-21	2	100	2
22-28	0	101	0
29	2	102-103	1
30-32	1	104-106	2
32.1	1	107	1
33-35	0	108-110	0
36	1	111	1
37	0	112	0
38-39	1	113	1
40-42	0	114	2
43	1	115-116	0
44	2	117	1
45	0	117.1	2
46-47	2	117.2	1

Page No.	Change No.	Page No.	Change No.
117.3	2	190	1
117.4	1	190.1	1
118-120	1	191-192	0
120.1	1	193	2
121-122	1	193.1	1
123-127	0	194	1
128-129	2	195	0
130-135	1	196-197	1
136-143	2	198	2
143.1	2	199-200	1
144	2	200.1	1
145	1	201-202	0
146	2	203-210	1
147-149	1	211-212	0
149.1	2	213-215	1
150	0	216	0
151	2	217-218	1
152-153	0	219	0
154	1	220-221	1
155-160	0	221.1-221.2	1
161	1	222-240	0
161.1	1	240.1	1
162	2	241	0
163	0	242	1
164	2	243-244	0
165	0	245	1
166	1	246-253	0
167-168	0	254-257	1
169	2	258-261	0
170	0	262-282	1
171-172	1	282.1	1
173	0	283	0
174-175	2	284-290	2
176-177	1	290.1-290.2	2
178	2	291-292	0
179-180	1	292.1-292.2	1
181	0	293	0
182	1	293.1	1
183	0	294	1
184	2	295-297	0
185	0	298	2
186	1	299-302	0
187	2	303	2
188-189	0	304-306	0



SECTION 1. GENERAL DESCRIPTION

1.1 Purpose

The purpose of the Users Manual for the Simulation for the Assessment of TActical Nuclear Weapons (SATAN III) is to provide the general management and staff personnel, and the management and staff personnel of the affected operating divisions and functional areas within the user's organization, with the information necessary to use the system.

1.2 Project References

The SATAN III Model was developed for the Command and Control Technical Center (CCTC), Defense Communications Agency and was sponsored by the General Purpose Forces Division, Studies, Analysis and Gaming Agency, (SAGA) Organization of the Joint Chiefs of Staff.

Applicable Documents

a. Department of the Army, Staff Officers Field Manual-Nuclear Weapons Employment Effects Data (U), SECRET, FM 101-31-2, July 1970.

b. Command and Control Technical Center, Simulation for the Assessment of Tactical Nuclear Weapons (SATAN III), Computer Operation Manual (U), Computer System Manual, CSM OM 202-75, 1 July 1975.

c. Command and Control Technical Center, Simulation for the Assessment of Tactical Nuclear Weapons (SATAN III), User's Manual (U), Computer System Manual, CSM UM 202-75, 1 July 1975.

d. Command and Control Technical Center, Simulation for the Assessment of Tactical Nuclear Weapons (SATAN III), Computer System Manual, CSM MM 202-75, 1 July 1975.

e. National Military Command System Support Center, Simulation for the Assessment of Tactical Nuclear Weapons (SATAN), Program Description, Output Processor (U), Computer System Manual, Number CSM PD 36-68, Volume III, 8 May 1968.

f. National Military Command System Support Center, Simulation for the Assessment of Tactical Nuclear Weapons (SATAN II), System Description, Computer System Manual, Number CSM SD 133-72, 5 January 1973.

g. National Military Command System Support Center, Simulation for the Assessment of Tactical Nuclear Weapons (SATAN II), Programming Specifications, Computer System Manual, Number CSM PSM 133-73, 15 September 1973.

SECTION 2. SYSTEM SUMMARY

2.1 System Application

SATAN III is a computerized method of simulating a two-sided military conflict in a battlefield environment within which the tactical nuclear weapons of the two opposing forces can be employed and their methods of employment and effectiveness examined. SATAN III operates in three broad functional phases; Input Processor, Simulation, and Output Processor. Detailed information for each phase is contained in subsection 2.7. Figure 1, General Flow Diagram depicts the flow of data for the System.

2.2 System Operation

The General Purpose Forces Division, Studies, Analysis and Gaming Agency (SAGA) prepares and submits input data arrays to CCTC for the running of a SATAN game. (See figure 2, System Information Flowchart; and subsection 3.1 Staff Input Requirements).

2.3 System Configuration

SATAN III has been constructed to operate on the CCTC Honeywell Information System 6000 Series Computers (HIS). (See figure 3, System Configuration Flowchart.)

2.4 System Organization

SATAN III consists of three major programs; TRNSAT, SATSIM, and OUTSAT, which in turn employ various subroutines to perform the required processing functions. TRNSAT is an input data processor. TRNSAT processes input data arrays from cards or a library tape for an initial game period. SATSIM processes events in a time ordered sequence simulating the results of the conflict. OUTSAT generates fixed summaries depicting the final status of the related game cycle. Detailed information may be found by referencing figure 4, Integrated ADP Flowchart - MAIN SYSTEM; Appendix A, Subroutine Summary Chart; subsection 3.1, Staff Input Requirements; and the SATAN III Program Maintenance Manual. Further, the system is supported by six independent subsystems; QUERY, FILETP, PLOT, OUTSRT, GENHOB, and SUMSUM. Each of these subsystems is covered in detail in sections 4 through 9 of this manual.

INPUT PROCESSOR

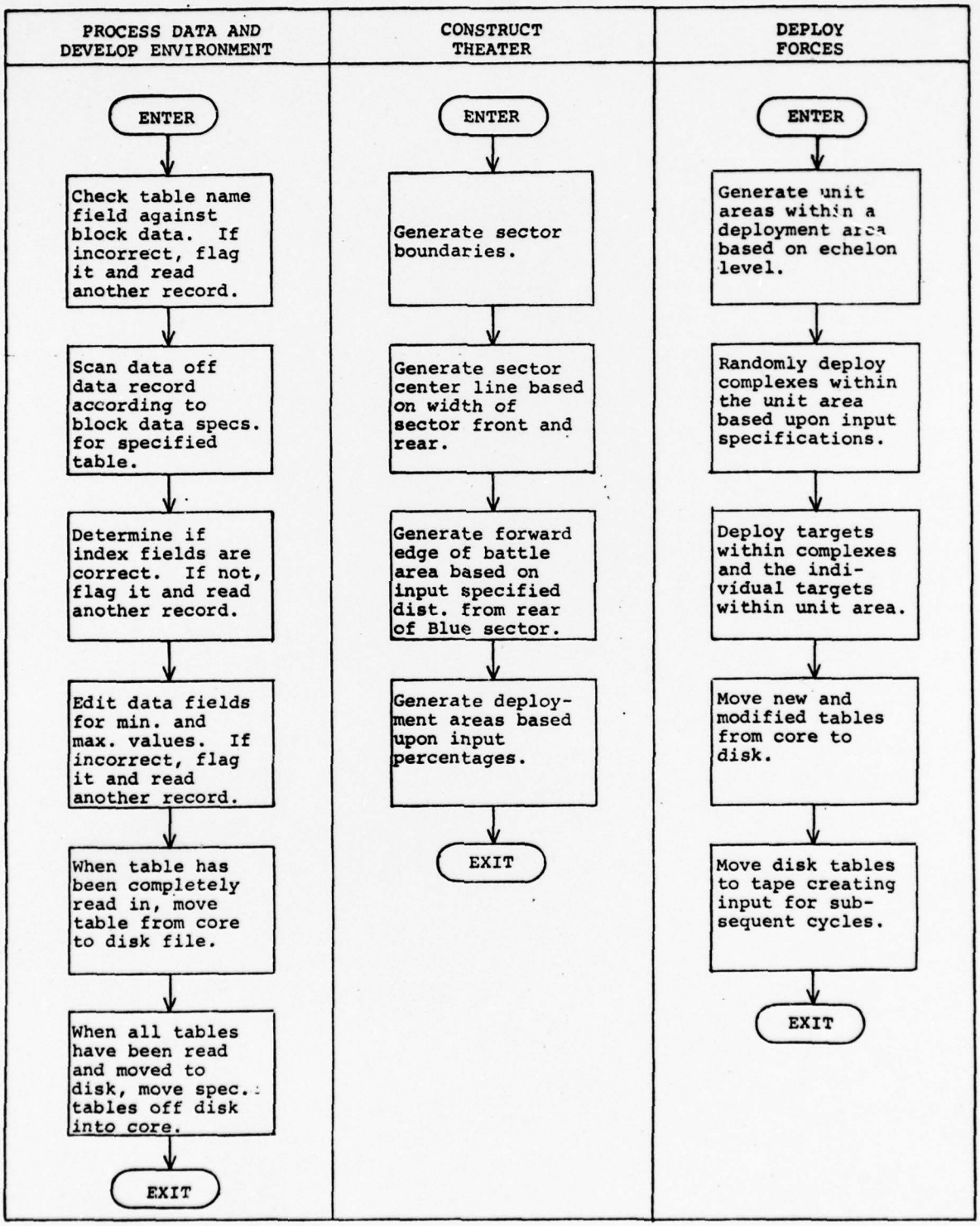


Figure 1. General Flow Diagram (Part 1 of 6)

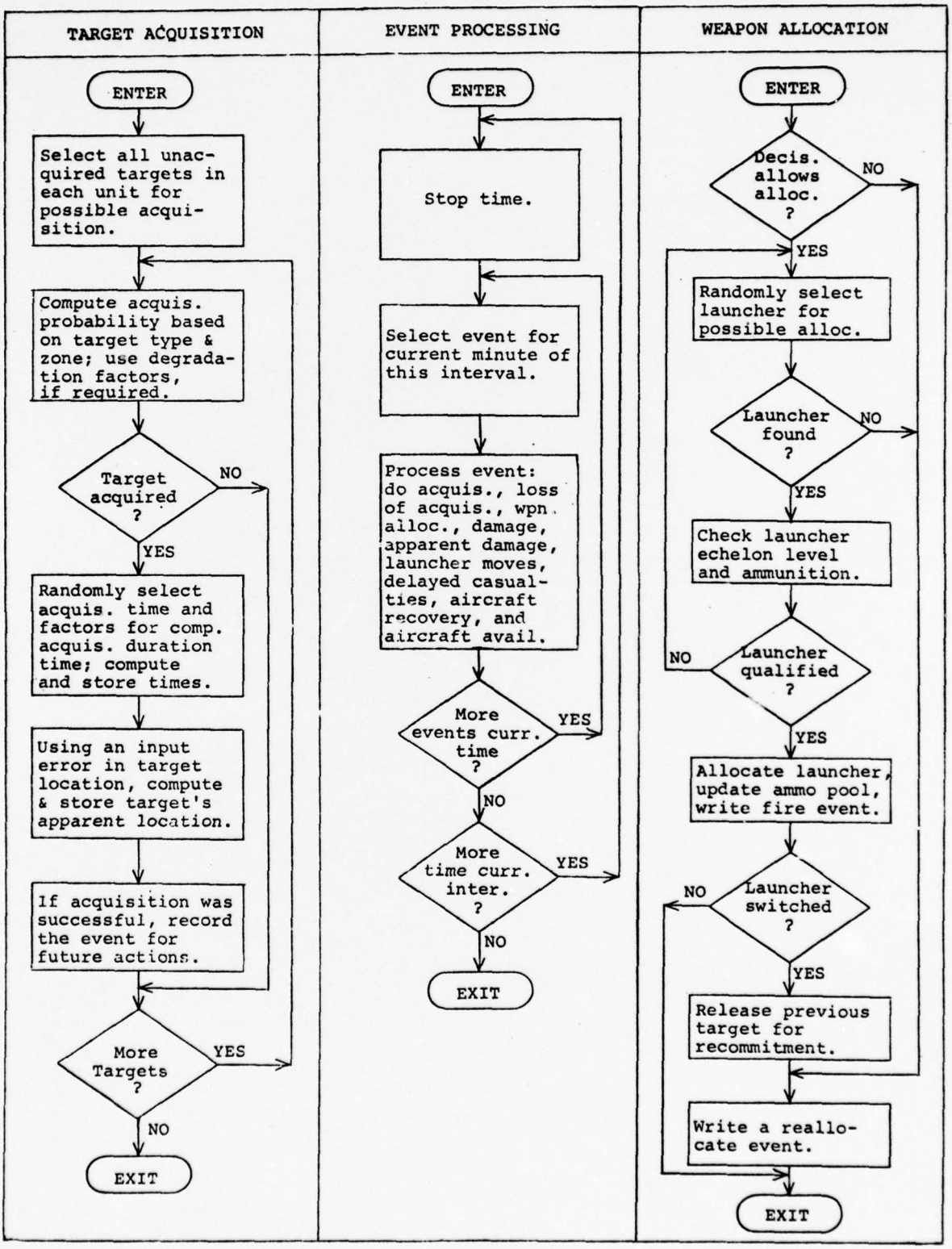


Figure 1. (Part 2 of 6)

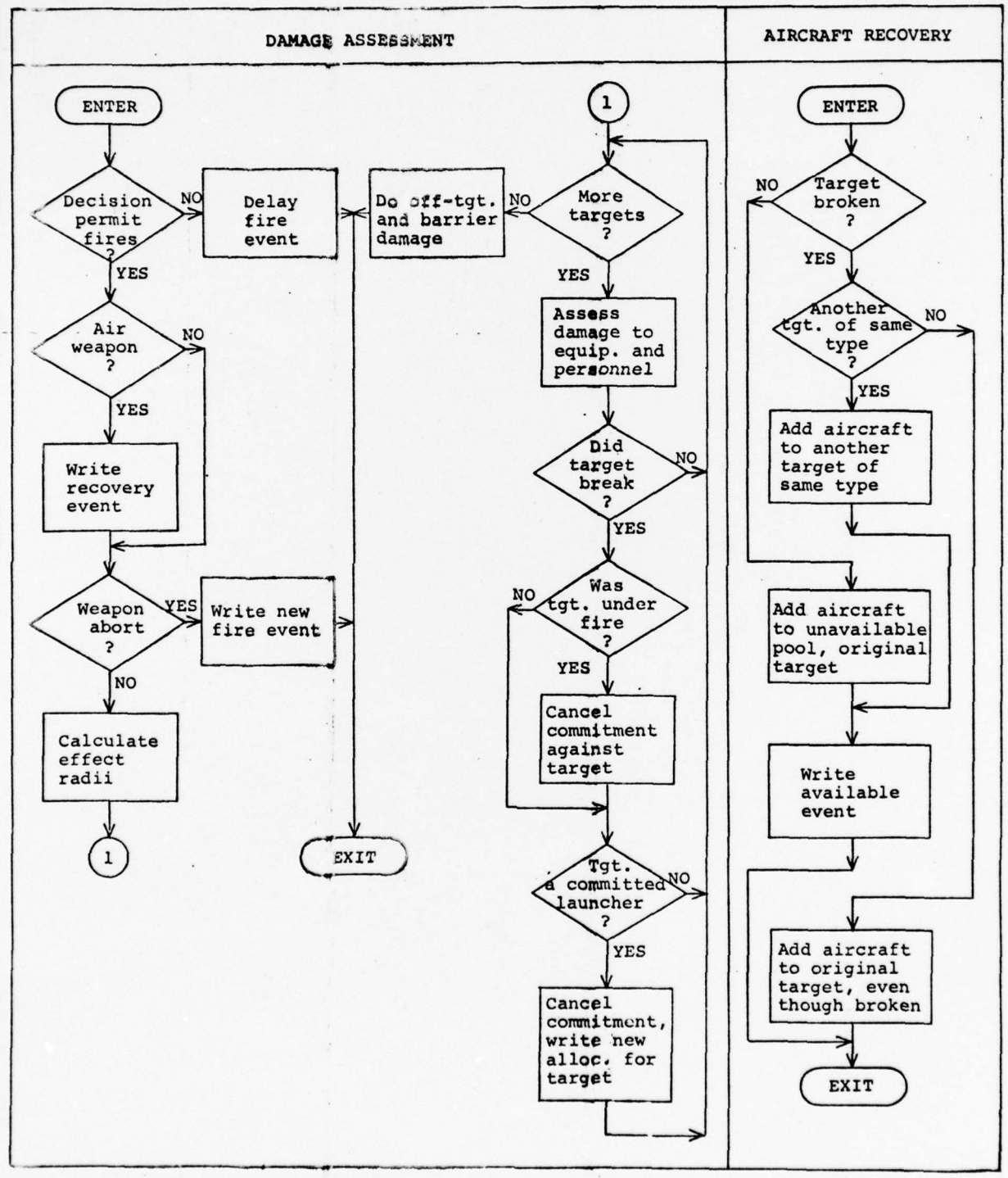


Figure 1. (Part 3 of 6)

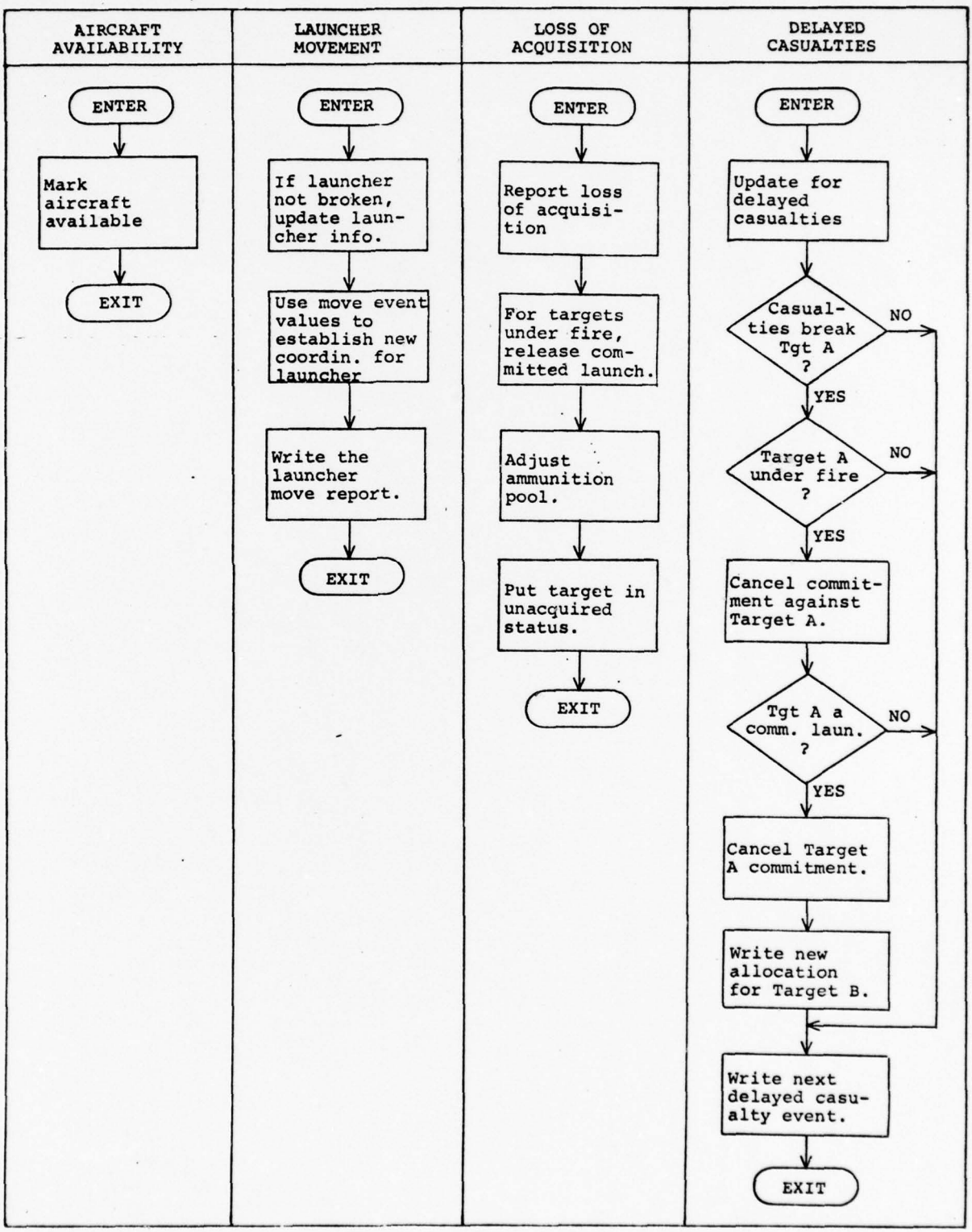


Figure 1. (Part 4 of 6)

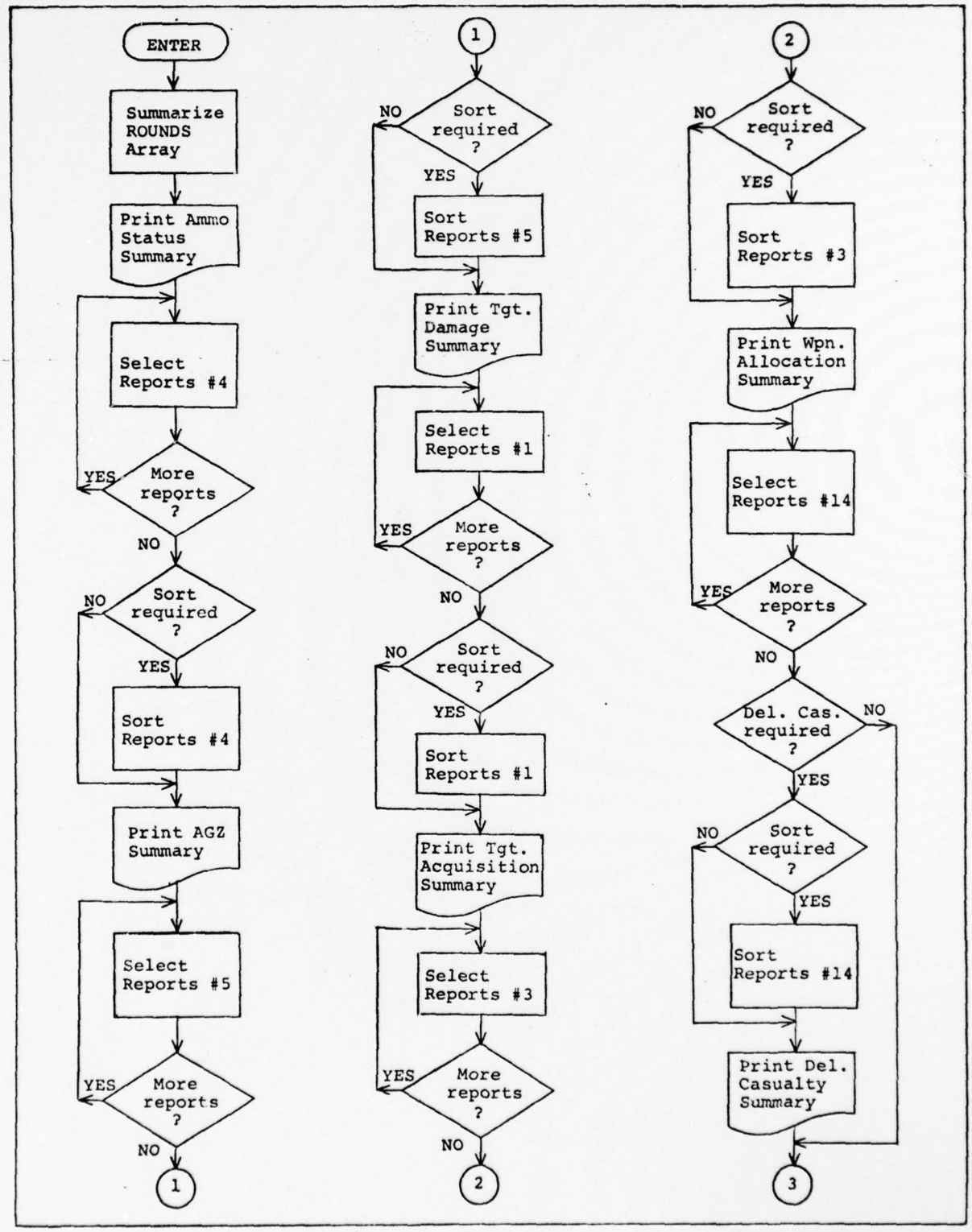


Figure 1. (Part 5 of 6)

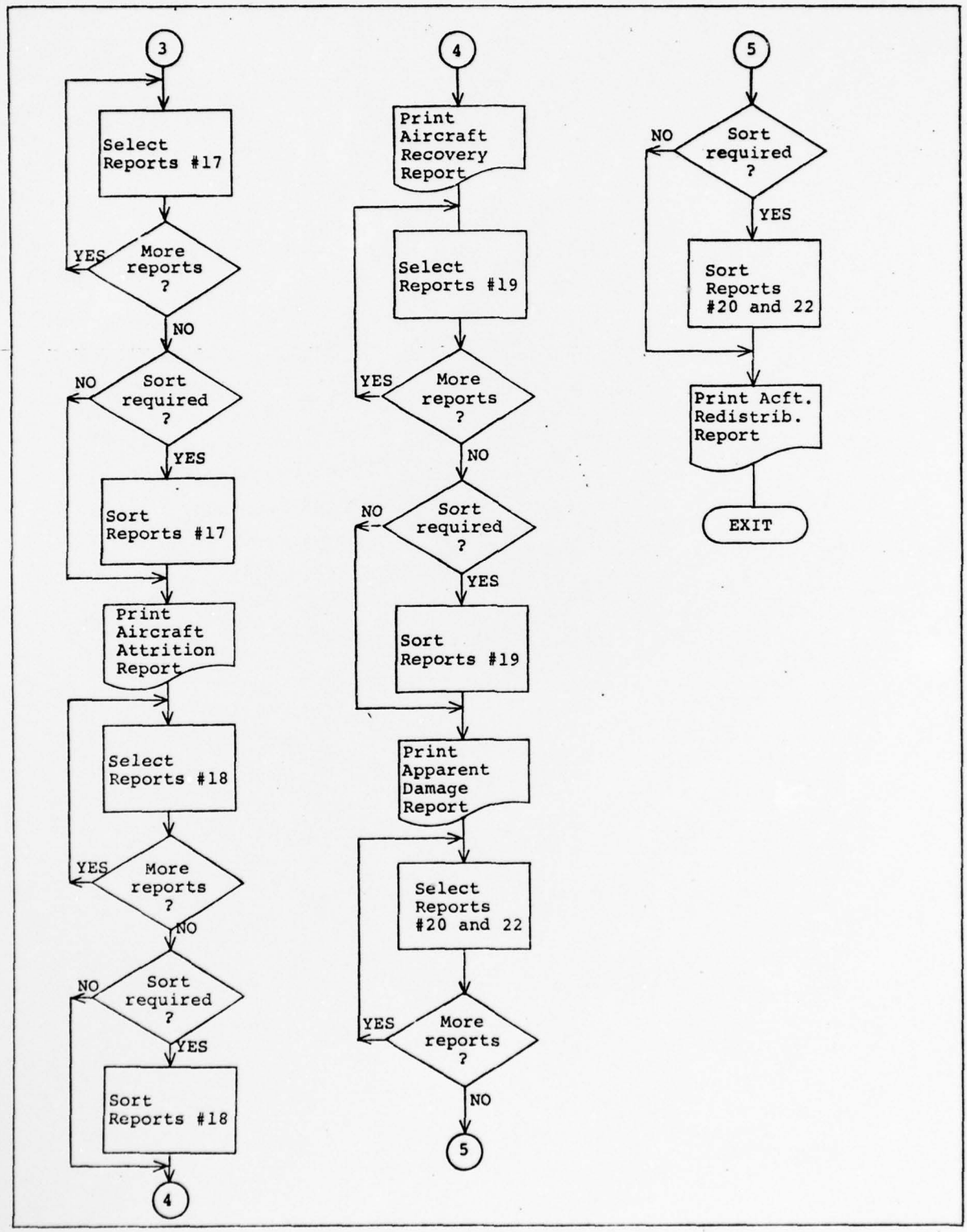


Figure 1. (Part 6 of 6)

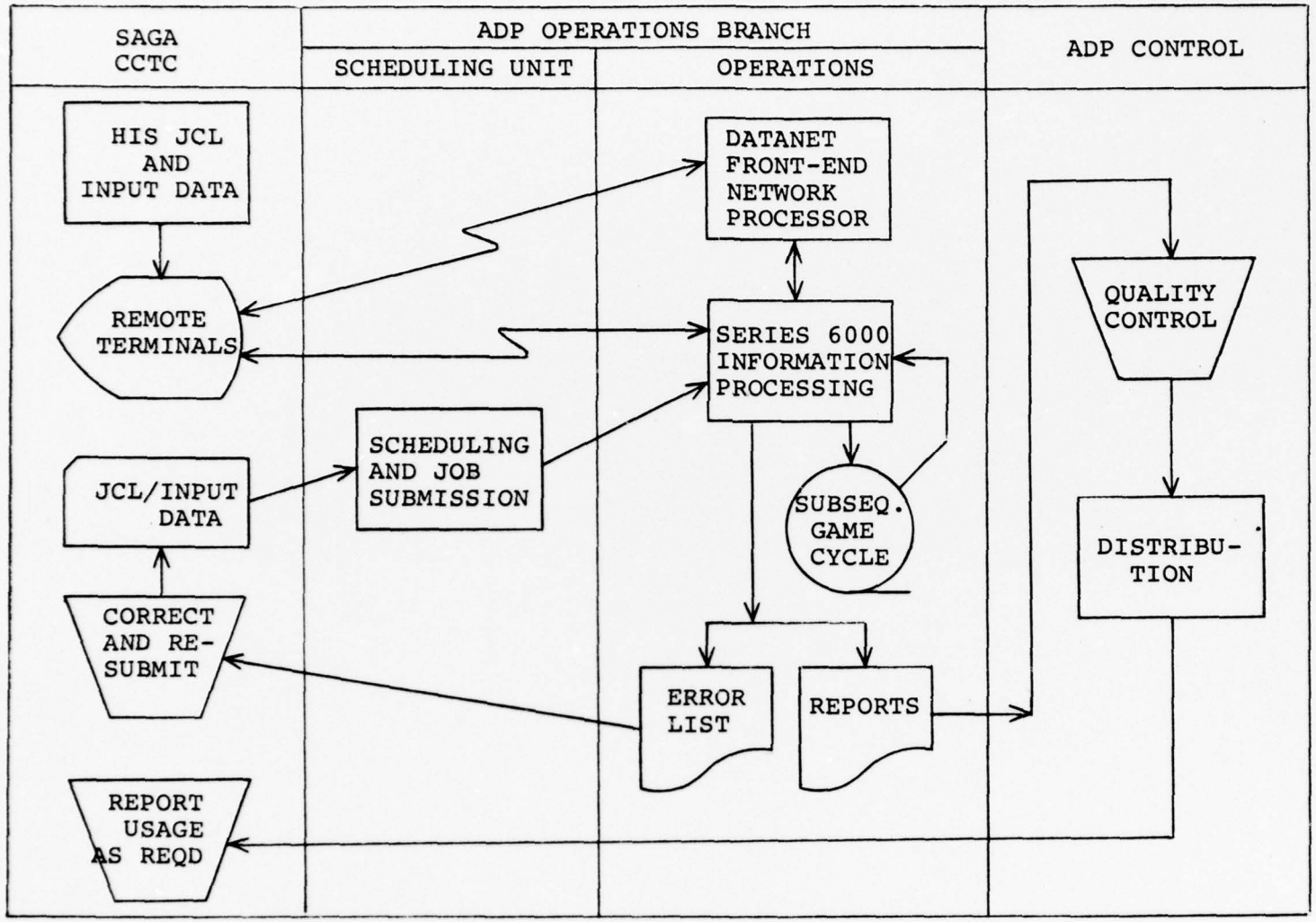


Figure 2. System Information Flowchart

on the actual location of the target as of the Ground Zero (GZ). Launchers in transit cannot be committed to fire, but may receive damage at their then-current location.

(h) Aircraft Recovery. Aircraft recovery events cause the corresponding aircraft to be returned to base but not available for allocation.

(i) Aircraft Availability. Aircraft availability events cause the corresponding aircraft to be made available for allocation, if recovered at an active base.

(4) FEBA Adjustments. SATAN III accumulates the effects of a tactical nuclear exchange for the length of time specified by the user. These effects include damage inflicted on- or off-target. The capabilities of the opposing forces will vary as the simulation progresses. At specified intervals, force strength will be determined which in turn determines FEBA movement. SATAN III will determine the move distance (if any) of the FEBA.

c. Output. The Output Processor creates three types of presentations from the data recorded by the Simulator: fixed summaries, user-specified summaries, and graphical displays. The following fixed summaries are printed in tabular form: Actual Ground Zeros, Ammunition Status, Damaged Targets, Apparent Damage, Delayed Casualties, Target Acquisitions, Weapon Allocations, Aircraft Attrition, Aircraft Recovery, and Aircraft Redistribution.

With exception of Ammunition Status Summary, the user may specify at the time of use the ordering of the data printed in the fixed summaries. For example, the AGZ data may be listed in the order of occurrence and in the order of GZ coordinates, as well as in the order of increasing yield.

The Actual Ground Zeros Summary displays each GZ that has occurred, the DGZ coordinates, AGZ coordinates, yield, weapon system, HOB, radius of effect, and time of GZ.

The Ammunition Status Summary displays the number of original rounds, remaining rounds, rounds used, and rounds committed.

The Damaged Targets Summary displays each damage to a target, the time of GZ, weapon system, and amount of damage sustained including numbers of casualties.

The Apparent Damage Summary displays each apparent damage to a target, the time of apparent damage, weapon system, and the time and apparent status.

The Delayed Casualties Summary displays the total number of casualties resulting from radiation exposure by target.

The Target Acquisitions Summary displays each target acquired (both normal or counterbattery), time of acquisition, duration of acquisition, and computed acquisition probability.

The Weapon Allocations Summary displays the allocation of weapons to targets, time of allocation, scheduled time of fire, launcher identification, weapon system type, yield, and number of rounds.

The Aircraft Attrition Summary displays those aircraft lost during ingress or egress and lists the reason (air-to-air or SAMs) for attrition.

The Aircraft Recovery Summary displays the aircraft recovered from a mission and target at which the aircraft was recovered.

The Aircraft Redistribution Summary displays the aircraft (if any) that were removed from broken targets and placed on active targets.

User-specified summaries may be obtained from Simulator output report data by means of the QUERY processor. (See subsection 3.7.2 and section 4.) The user specifies which items are to be extracted from selected reports and the order in which the selected data are to be printed. QUERY allows the user to perform limited mathematical computations on the extracted information.

Data for creating graphical displays consisting of bar graphs and geographical overlays may be generated on special command of the user. (See subsection 3.7.2.3 and section 6.) The bar graph capability depicts by unit the percentages of remaining personnel, tanks, maneuverable targets, artillery targets, reserve targets, and launchers. The geographic overlays include theater overlays and unit overlays. Theater overlays show the theater boundaries and locations of complexes. The unit overlays show the unit boundaries, target complex boundaries, target locations and their condition (undamaged, damaged, or broken), locations of GZs, and areas affected by GZs. An enlarging capability also is available for showing a portion of the theater on a larger scale.

SECTION 3. STAFF FUNCTIONS RELATED TO TECHNICAL OPERATIONS

3.1 Staff Input Requirements

The preparation of input data for a SATAN III game requires that the user have a thorough understanding of the procedures used in: theater construction and automatic deployment of targets, rules governing array changes at Simulator run time, how and when targets are acquired and lost, rules governing the assignment of weapons to targets, calculations involved in assessing damage to targets, counterbattery operations, FEBA movement, and decision making processes. The following subsections describe the above areas.

3.1.1 Theater/Sector Construction and Automatic Deployment. A SATAN III game can be played in a theater area as large as 3000 kilometers by 3000 kilometers. When superimposed on a scaled metric grid system, e.g., Universal Transverse Mercator Grid System, on the map of the area of interest, the theater area must be located in the first quadrant with respect to an established origin. The largest coordinate (either X or Y) must not exceed the value 300000 in 10s of meters. Sectors are located from left to right as you stand on the Blue side facing the FEBA. A maximum of ten sectors is permitted. SATAN III constructs the theater/sectors of operation from user input parameters. Listed below are the steps used to construct sectors and the FEBA:

a. Connect the four theater corner points; Rear Left (RL), Rear Right (RR), Front Right (FR), and Front Left (FL), to form the boundary of the theater. (See figure 5, Theater/Sector Construction.)

b. Determine the coordinates of the sector boundary points for each sector being gamed by entering points, PNS, where N equals boundary point index and S equals sector number for the right side of each sector, starting with the first sector at the far left (S equals 1). For each sector begin at the rear of the theater and work toward the front. The points are numbered P1S, P2S, ... , PNS where S is the number of the sector being described. The number of sectors will always be one greater than the number of sector boundaries. The points on the left side of each sector are automatically set equal to the sector boundary points on the right side of the adjacent sector. The number of sector boundary points on each sector boundary must be between one through 17. The maximum number of sector boundaries is nine, the maximum number of sectors is 10.

a. Choosing a Weapon. During a cycle the program must follow a certain set of rules to determine which weapon will take a target under fire. Some of these rules are established by the user through the input of a weapon employment doctrine, others are built into the structure of the program itself, and still others result from the original deployment of weapons and targets. When the program searches for a weapon to assign to a target, it must answer the following questions:

(1) Which organizational unit (division, corps, or army) will fire at the target or is air the desired delivery mode?

(2) Once it has been determined which division, corps, army, or air unit will fire, which weapon system or systems can be used?

(3) Of the eligible weapon systems, are there any weapons physically capable of firing at the target?

b. Selection of Organizational Unit and Launcher. Units assigned to a given sector may take under fire any target of the opposing side within the same sector. Units are randomly selected and from these units a launcher, if available, is randomly selected to be checked for the proper weapon system, range, and whether the fire will endanger the safety of friendly troops. If friendly troops are endangered, a check is made to see if offsetting the DGZ would result in the desired coverage and not endanger friendly personnel.

c. Target-type Priorities. The user is asked to rate each target type in terms of its relative importance by assigning a priority (not necessarily unique) that may range from one to 200 in the order of decreasing value. During the cycle when weapons are assigned to targets, these ratings will be used to determine whether a target's priority is such that, if necessary, a previously committed but yet unfired weapon of the desired system can be reassigned to the current target. For example, nuclear delivery systems might be assigned priorities of one and command posts priorities of two. If the launcher is the current target and no uncommitted weapons are

3.1.7 Decision Making. SATAN III provides the user with a wide range of decisions that will affect all phases of the simulation. DECISN, a user-input array, lists those actions taken by and against each side. For each action a user lists a reaction (line number of the array ACTION). Reactions may vary from "no response" to a full-scale nuclear exchange. SATAN III examines the DECISN array after each event, if applicable, and will respond, if required, when a given decision has been satisfied. (See figure 14, Example of DECISN and ACTION Arrays.) In figure 14, when side one has received from one to 10 rounds of fire within the first 30 minutes of play, it will respond with action number one. The response will be to fire 10 preplanned weapons on targets with a priority of from one to 20 and fire 10 normal fires on targets with a priority of from 21 to 50. Line two of DECISN array shows that when side two has received from 10 to 30 rounds it will respond with an "all go" (full scale) exchange. In the SATAN III DECISN array, after entering the last piece of meaningful data on a line, all following "0" data values on that line may be omitted. Two hundred decisions (DECISN) may be entered and up to 50 responses (ACTION) specified. The ACTION and DECISN arrays may be modified at SATSIM run time.

3.2 Composition Rules

SATAN III operates in periods of user-specified simulation time called cycles. The input necessary for the operation is in the form of arrays. There are four types of input data: input control data, initial input data arrays, arrays modified at SATSIM run time, and subsequent cycle input data arrays. SATSIM will accept replacements or changes, without rerunning TRNSAT, to the following arrays: ACCHAR, ACFTAS, ACTION, DECISN, NUCAFT, PREPLN, and ROUNDS. In addition, personnel and equipment strength may be changed by inputting the array NEWTOE. Subsequent cycle input data arrays describe the changes to the input data that the user may make between cycles. Input control data are described in subsection 3.8, Using the SATAN III System. Initial or modified input data and subsequent cycle input data are covered in the following subsections. Input formats for preparing input data arrays are contained in subsection 3.4, Input Formats.

3.2.1 Initial Cycle Input. A SATAN III game requires that each array set be present for a successful SATAN game. Each array set consists of three parts: an array "STARTS" card, the individual array card(s), and an array "STOPS" card. The composition of the "STARTS" and "STOPS" cards is covered below. The composition of the arrays cards are covered individually in the following subsections. The "STARTS" card must be the first card of each set and must contain: the array name, left-justified, beginning in column 1, the word "STARTS" in columns 8-13 and the game version made up of

any four alphanumeric characters in columns 15-18. The first character must be alphabetic. The "STOPS" card must be the last card of each set and must contain: the array name in columns 1-6, and the word "STOPS" in columns 8-12. Every data field within the individual array card(s) must have a data entry up to and including the rightmost field for which there is a real value. Leading zeros need not be punched in any data field. Fields to the left of any field which are not to contain a real data entry must contain a single zero in the rightmost column of their respective fields. Fields to the right of the last real data on a given card may be left blank.

3.2.1.0.1 ACCHAR - Aircraft Characteristics. The ACCHAR array provides aircraft characteristics for use in the simulation of air-to-air and surface-to-air attrition. Three types of data are provided for each aircraft type. The data provides the aircraft velocity, air-to-air and surface-to-air attrition rates.

One deck of ACCHAR cards must be prepared for each SATAN III game. Each card in the deck carries the data relating to one aircraft type. Composition rules for the preparation of the ACCHAR array are delineated below.

a. Format. Enter in columns 1-6 the array name ACCHAR.

b. Aircraft Type. Enter in columns 9-10 the aircraft type to which this data applies. "1" through "20".

c. Velocity. Enter in columns 20-23 this aircraft's speed, in knots. "0" through "9999".

d. Air-to-Air Attrition. Enter in columns 25-27 the percent of losses per hour over enemy territory from air defenses, "0" through "100".

e. Surface-to-Air Attrition. Enter in columns 29-31 the percent of losses for 100 percent SAM density, "0" through "100".

3.2.1.0.2 ACFTAS - Nuclear Aircraft. The ACFTAS array is indexed by target type and provides the type of aircraft and the percent of aircraft assigned that are nuclear capable.

One deck of ACFTAS cards must be prepared for each SATAN III game. Each card in the deck carries the data relating to one target type. Composition rules for the preparation of the ACFTAS array are delineated below.

a. Format. Enter in columns 1-6 the array name ACFTAS.

b. Target Type. Enter in columns 8-10 the target type to which this data applies, "1" through "200".

c. Aircraft Type. Enter in columns 20-21 the aircraft type assigned to the target type, "1" through "20".

d. Nuclear Capable. Enter in columns 23-25 the number of aircraft assigned to this target type that are nuclear capable, "1" through "200".

e. Shelter Type. Enter in columns 27-28 the type shelter assigned to this target type, "1" through "2".

f. Number of Shelters. Enter in columns 30-32 the number of shelters assigned to this target type, "0" through "200".

g. Sortie Rate. Enter in columns 34-36 the rate of turnaround of an aircraft of this type in a 24-hour period, "1" through "100".

3.2.1.1 ACQFAC - Acquisition Factors. The ACQFAC array provides the general input data required for each side and zone for the gaming of target acquisitions, the determination of the durations of acquisitions, and the errors in location of acquired targets. Zones are defined in terms of the distances from the FEBA to their rear boundaries measured in 10s of meters. Acquisition factors allow the player to control target acquisitions based on the protection afforded targets by conditions of weather, terrain, darkness, and the zone in which the target is located. Acquisition durations are based on a time/loss curve. The user inputs four values which give, respectively, the number of minutes after which 5 percent, 20 percent, 50 percent, and 100 percent of the acquired targets will be lost. When a target is acquired, the exact location may not be determined. The error in location of targets is a function of the target type and is given in the TRCHAR array. This basic error value may be modified by the usage of an item in ACQFAC, giving the user control by zone and side over the precision of target location. One deck of ACQFAC cards must be prepared for each SATAN III game. Each card in the deck carries the data relating to one zone/side combination. Composition rules for the preparation of the ACQFAC array are delineated below.

a. Format. Enter in columns 1-6 the array name ACQFAC.

b. Zone. Enter in column 10 the number designating the zone to which the card applies, "1" through "5".

c. Side. Enter in column 14 the side to which the card applies. "1" = Blue, "2" = Red.

3.2.1.10 COEFFC - Coefficients. The COEFFC array provides data necessary for the calculation of minimum safe distances for scheduling targeting near friendly personnel. Entries are based on values extracted from the Radius of Safety section of the (C-FRD) Weapons Effects Table, the current Department of the Army Field Manual 101-31-2. When a new edition of FM 101-31-2 is published, values in the COEFFC array must be updated. Data in COEFFC includes multipliers which, when used with other data, provide the safe distances associated with the acceptable risk levels. One set of multipliers is provided for each yield of weapon to be used. The following steps, by yield, are used to arrive at the multipliers for each of the three troop safety risk categories (negligible, moderate, and emergency):

Determine Height of Burst Optimum (HOBOPT), found at the bottom of the page of the referenced table.

Under Warned Protected columns of the referenced table enter at the above-determined HOBOPT to find the range, in meters, for the negligible and emergency categories. Interpolate between the two category ranges for the moderate risk range.

Divide the yield in kilotons, into these ranges. The resulting quotients are the multipliers to be entered in the COEFFC array.

One deck of cards must be included for each SATAN III run. The deck is available at the CCTC. Composition rules for the preparation of the COEFFC array are delineated below.

a. Format. Enter in columns 1-6 the array name COEFFC.

b. Line Number. Enter in columns 9-10 the line number. Cards should be numbered sequentially beginning with one. "1" through "40".

c. Yield. Enter in columns 20-26 the yield, in kilotons, ordered on increasing values. "0.00" through "2000.00".

d. Negligible Risk Factor. Enter in columns 28-36 the multiplier for the negligible risk level. "0.00" through "100000.00".

e. Moderate Risk Factor. Enter in columns 38-46 the multiplier for the moderate risk level. "0.00" through "100000.00".

a weapon system. Each selection criteria for a target class will have listed the following characteristics: unit echelon level, launcher type, weapon system type, and weapon yield. In addition, the minimum and desired number of rounds of this system that are acceptable against this target class will be entered.

One deck of TCLASS cards must be prepared for each SATAN III game. Each card in the deck carries the data relating to one target class. Composition rules for the preparation of the TCLASS array are delineated below.

a. Format. Enter in columns 1-6 the array name TCLASS.

b. Line Number. Enter in columns 8-10 the line number. Cards should be numbered sequentially beginning with one. "1" through "600".

c. Target Class. Enter in columns 20-22 the target class defined by this card. "1" through "200". A maximum of 10 entries per target class is permitted.

d. Echelon Level. Enter in column 24 the opposing unit echelon level that may be responsible for firing on this target class. Enter a "1" for division, "2" for corps, "3" for army, "4" for air.

e. Launcher or Aircraft Type. Enter in columns 26-28 the desired launcher type, "1" through "100", or aircraft type, "1" through "20", to be committed against this target class. Launcher or aircraft type is utilized in the selection of a suitable launcher or aircraft from the array TARTBL.

f. Weapon System. Enter in columns 30-31 the desired weapon system to be committed against this target class. "1" through "50". Weapon system types are pointers to enter the array WPCHAR.

g. Yield. Enter in columns 33-39 the desired weapon yield, in kilotons, to be assigned to this target class. "0.01" through "2000.00".

h. Desired Number of Warheads. Enter in column 41 the desired number of warheads that may be fired at this target class by this weapon system. "1" through "8". Eight rounds are the maximum permitted. If this entry is greater than "1" and the simultaneous fire marker (TARDOC) is "0", the resulting fire will be a multifire.

i. Minimum Number of Warheads. Enter in column 43 the minimum number of warheads of this weapon system that would be acceptable against this target class. "1" through "8".

3.2.1.27 TCMPLX - Target Complex Description. The TCMPLX array provides input data that permits the player to describe functional groupings of targets. A target complex is a circular area, defined by a center point and radius, within which the user locates targets identified by target type and/or subcomplexes (a target complex within a target complex) identified by complex type. The complex is described in its own Cartesian Coordinate system, with the complex wholly contained in the first quadrant (see figure 16, Target Complex Grid, Example, Part A). The coordinates are measured in 10-meter increments.

A single complex may be made up of a maximum of 200 items when its subcomplexes have been expanded; the complex itself, its targets, its subcomplexes and their targets all count in deriving the number of items in the basic complex. The characteristics of the types of this complex and each subcomplex must have been included in the array CXCHAR. For each target type entered, the characteristics must be included in the array TRCHAR. Subcomplexes must be described elsewhere in this TCMPLX array.

The user places a complex within an organizational unit by specifying the complex type in the array FORSTR. The program assigns coordinate locations to each of the targets and/or subcomplexes within the complex, using the complex's center as a reference point, and maintaining the special relationships between the complex's center point and individual targets and/or complexes within the complex. (See figure 16, Target Complex Grid, Example, Part B.)

One deck of TCMPLX cards must be prepared for each SATAN III game. Each card in the deck carries the data relating to a target or a subcomplex within an individual target complex. Composition rules for the preparation of the TCMPLX array are delineated below.

a. Format. Enter in columns 1-6 the array name TCMPLX.

b. Line Number. Enter in columns 7-10 the line number. Cards should be numbered sequentially beginning with one. "1" through "2200".

c. Target Complex Data. The following items describe an individual target complex.

o. ADM Marker. Enter in column 73 if this weapon is an ADM. "0" = No, "1" = Yes.

3.2.2 Simulator Input Array Preparation. Although it is possible for the simulation to continue in subsequent cycles with no additional inputs, the user may make limited changes to the data received on the Simulator Input Tape (SMITAP) without a rerun of TRNSAT. There are eight areas in which changes may be made: aircraft characteristics (ACCHAR), aircraft assignment (ACFTAS), action to be taken for a given decision (ACTION), decisions that direct action to be taken (DECISN), nuclear reserve (NUCAFT), percent of TOE strength (NEWTOE), preplanned fires (PREPLN), and ammunition supplies (ROUNDS).

When preparing input array changes or the new array NEWTOE, the user must consider the possible effects on the subsequent cycles. For example, a new percent of TOE strength can reduce a unit's strength below the input break factor, causing that unit to be ineffective throughout following cycles.

The "STARTS" and "STOPS" cards described in subsection 3.2.1, Initial Cycle Input, are also applicable to input arrays at Simulator run time. The format for each array has been described in subsection 3.2.1, Initial Cycle Input. Each line or selected lines of these arrays may be input. If only selected lines are input, the word "UPDATE" should be substituted for the version name.

3.2.2.1 Subsequent Cycle Input Array Preparation. Although it is possible for the simulation to continue in subsequent cycles with no additional inputs, the user may make limited changes to the data that began the game once a cycle of play has been completed by rerunning SATSIM. There are five areas in which changes may be made: replenish warheads (ROUNDS), change the required nuclear aircraft reserve (NUCAFT), amend the decisions (DECISN) that direct certain actions to be taken, change actions (ACTION) for a given decision and new preplanned fires (PREPLN).

The "STARTS" and "STOPS" cards described in subsection 3.2.1, Initial Cycle Input, are also applicable to subsequent cycle input arrays. If one of the aforementioned arrays is to be modified (change of selected lines), the version name on the STARTS card should contain the word "UPDATE".

3.3 Vocabulary

Appendix B, Input Data Array Items, contains all of the items in SATAN III in alphabetical sequence. The appendix outlines, by item, the item name, description, and legal values, and the associated array name. Appendix G, Glossary of Terms, contains an alphabetical list of SATAN III generic terms with definitions.

3.4 Input Formats

The input formats used for the entering of SATAN III input array data are contained in Appendix C, Input Formats, Data Transcription Forms. Subsection 3.2, Composition Rules, describes in detail the preparation of each form including the individual items within each form. The formal interface (form) that represents "job submission" or "request for computer services" shall be the standard HIS 6000 form employed at the CCTC computer site.

3.5 Sample Inputs

The variations of SATAN III input data arrays are infinite in scope. In an environment of this nature individual "stand alone" samples of input data arrays and items would be meaningless. However, Appendix D - Sample Inputs - SATAN III Game, contains the data arrays required to play the Model's operational test game, OPER.

3.6 Output Requirements

At the end of each cycle, two types of output are produced by the SATAN III Model; magnetic tape and reports. The magnetic tape output may be used as input to subsequent cycles or as input (OUTSAT, OUTSRT, SUMSUM, PLOT, QUERY) to prepare: fixed summaries, graphic displays, or desired user specified summaries. (See figure 4 Integrated ADP Flowchart.) The output reports consist of an input data array error listing (TRNSAT), and user option information reports (SATSIM) relating to event activity. Detailed information concerning these outputs is covered in subsection 3.7, Output Formats, Samples, and Utilization, which follows.

3.7 Output Formats, Samples, and Utilization

Each of the two types of output created by the SATAN III Model, i.e., magnetic tape output, and output summaries/reports, are described separately in the following subsections.

Print Field	V-Number	Item	Description
28	V24	RPFABR	Launcher switch (0/no, 1/yes)
29			Not used
30	V29	RPACFT	Aircraft type
31-35			Not used

3.7.2.2.4 Report 04 (Fire Report).

Print Field	V-Number	Item	Description
1	V01	RPTIME	Cycle time, in minutes
2	V02	RPCODE	Report code 4
3	V03	RPSIDE	Numerical designation of the target side (1/Blue, 2/Red)
4	V04	RPSECT	Numerical designation of the sector in which this target is located
5	V06	RPDPAR	Numerical designation of the deployment area in which this target is located
6	V05	RPZONE	The acquisition zone in which this target is located
7	V07	RPTLVL	The target's unit echelon level

Print Field	V-Number	Item	Description
22	V34	RPTRND	Number of conventional aircraft lost
23	V35	RPCRND	Preplanned fire marker (0/no, 1/yes)
24	V23	RPRADE	Radius of effect, in meters, for prompt casualties to protected personnel
25	V21	RPPPAM	Aim point marker (0/no, 1/yes)
26	V20	RPPROB	Percent of target overlap of weapon effect based on delayed casualties, exposed personnel
27	V32	RPADUR	Launcher broken marker (0/no, 1/yes)
28	V24	RPFABR	Target status (1/unacquired, 2/acquired, 3/under fire, 4/broken, 5/broken and unacquired, 6/broken and acquired, 7/broken and under fire, 8/unacquired and apparently broken, 9/acquired and apparently broken)
29	V25	RPPERS	Number of personnel losses
30	V29	RPACFT	Number of nuclear aircraft lost
31	V27	RPAPCS	Number of APCs lost
32	V31	RPTNKS	Number of tanks lost
33	V30	RPSAMS	Number of SAMs lost
34	V28	RPARTY	Number of artillery pieces lost
35	V26	RPTRKS	Number of trucks lost

3.7.2.2.6 Report 06 (Delayed Casualties).

Print Field	V-Number	Item	Description
1	V01	RPTIME	Cycle time, in minutes
2	V02	RPCODE	Report code 6
3	V03	RPSIDE	Target side (1/Blue, 2/Red)
4	V04	RPSECT	Target sector number
5	V06	RPDPAR	Target's deployment area
6	V05	RPZONE	Target acquisition zone
7	V07	RPTLVL	Target's unit echelon level
8	V08	RPTUNT	Numerical identification of the target's unit
9	V09	RPTGTN	Target's number within unit
10	V10	RPTTYP	Target's type
11-22			Not used
23	V35	RPCRND	Number of this delayed casualties event
24-27			Not used
28	V24	RPFABR	Target status (1/unacquired, 2/ acquired, 3/under fire, 4/broken, 5/broken and unacquired, 6/broken and acquired, 7/broken and under fire, 8/unacquired and apparently broken, 9/acquired and apparently broken)
29	V25	RPPERS	Percent of total casualties
30-35			Not used

3.7.2.2.7 Report 07 (FEBA Move).

Print Field	V-Number	Item	Description
1	V01	RPTIME	Cycle time, in minutes

Print Field	V-Number	Item	Description
2	V02	RPCODE	Report code 7
3	V03	RPSIDE	Numerical designation of the side having the advantage (1/Blue, 2/Red)
4	V04	RPSECT	Sector number
5-10			Not used
11	V16	RPTXCO	Distance, in 10s of meters, from Blue rear boundary to the FEBA before movement
12	V17	RPTYCO	Distance, in 10s of meters, that this side advanced
13-15			Not used
16	V18	RPLXCO	Current strength of units not withdrawn, side 1 (Blue)
17	V19	RPLYCO	Current strength of units not withdrawn, side 2 (Red)
18			Not used
19	V15	RPYELD	Force strength ratio (strong versus weak, maximum value is 10.0)
20-23			Not used
24	V23	RPRADE	Actual speed of advance, in kilometers, per day
25-28			Not used
29	V25	RPPERS	Percent of degradation to move rate, this side
30-32			Not used
33	V30	RPSAMS	A barrier is affecting movement rate (0/no, 1/yes)
34-35			Not used

Print Field	V-Number	Item	Description
33	V30	RPSAMS	Tally of launchers considered that were too close to the target
34	V28	RPARTY	Marker, if set, indicates that there was no eligible launcher or aircraft
35			Not used

3.7.2.2.12.1 Report 14 (Postgame Delayed Casualties)

Print Field	V-Number	Item	Description
1	V01	RPTIME	Current time, in minutes
2	V02	RPCODE	Report code 14
3	V03	RPSIDE	Unit side (1/Blue, 2/Red)
4	V04	RPSECT	Sector number
5	V06	RPDPAR	Numerical designation of the deployment area in which this target is located
6	V05	RPZONE	Target acquisition zone
7	V07	RPTLVL	This target's unit echelon level
8	V08	RPTUNT	Numerical identification of this target's unit
9	V09	RPTGTN	This target's number within unit
10	V10	RPTTYP	This target type
11-27			Not used
28	V24	RPFABR	Target status (1/unacquired, 2/acquired, 3/under fire, 4/broken, 5/broken and unacquired, 6/broken and acquired, 7/broken and under fire, 8/unacquired and apparently broken, 9/acquired and apparently broken)
29	V25	RPPERS	Personnel casualties
30	V29	RPACFT	Time of AGZ, in minutes

Print Field	V-Number	Item	Description
9	V09	RPTGTN	Target's number within unit to which this aircraft was to strike
10	V10	RPTTYP	Target type to which this aircraft was to strike
11-12			Not used
13	V11	RPLLVL	Numerical designation of this aircraft's unit echelon level
14	V12	RPLUNT	Numerical designation of this aircraft's unit
15	V13	RPLCHN	Numerical designation of the target within this unit that this aircraft is assigned
16-17			Not used
18	V14	RPWSYS	The warhead type
19-28			Not used
29	V25	RPPERS	Lost during egress (air/SAM)
30	V29	RPACFT	This aircraft's type
31	V27	RPAPCS	Lost during ingress (air/SAM)
32-35			Not used

3.7.2.2.14.2 Report 18 (Aircraft Recovery).

Print Field	V-Number	Item	Description
1	V01	RPTIME	Cycle time, in minutes
2	V02	RPCODE	Report code 18
3	V03	RPSIDE	Numerical designation of the side to which this aircraft is assigned
4	V04	RPSECT	Numerical designation of the sector to which this aircraft is assigned

Print Field	V-Number	Item	Description
7	V07	RPTLVL	Numerical identification of the echelon level of this unit (1/division, 2/corps, 3/army, 4/air)
8	V08	RPTUNT	Numerical identification of this target's unit
9	V09	RPTGTN	Numerical identification of this target
10	V10	RPTTYP	Numerical identification of this target's type
11	V16	RPTXCO	X-coordinate of this target, in 10s of meters
12	V17	RPTYCO	Y-coordinate of this target, in 10s of meters
13	V11	RPLLVL	Numerical identification of the launcher's unit echelon level
14	V12	RPLUNT	Numerical identification of the launcher's unit
15	V13	RPLCHN	Numerical identification of this launcher
16-17			Not used
18	V14	RPWSYS	Numerical designation of this weapon system
19	V15	RPYELD	Yield, in kilotons
20-24			Not used
25	V21	RPPPAM	Aim point marker (0/not aim point, 1/aim point)
26	V20	RPPROB	Percent weapon overlaps target
27			Not used
28	V24	RPFABR	Target status
29	V25	RPPERS	Apparent break marker (0/no break, 1/break)

```
1       8           16                          (CARD COLUMNS)
```

```
$       IDENT       4883,TRNST,235,RHARRIS,672,13*
$       USERID      USERID$PASSWORD/CLASSIFICATION
$       LIMITS      CPU TIME,72K,,Lines of Output
$       PARAM       P1,P2,P3,P4
$       SELECT      674IDP00/RALPH/TRNCON
  TRNSAT Control Cards
END DATA
  DATA Decks/DATA Deck Control Cards
END DATA
$       ENDJOB
***EOF
```

P1 = Input tape reel number
P2 = Output tape reel number
P3 = Processor run time in hundredths of hours
P4 = Maximum printer output in lines

* The badge number and USERID are those of the requester.

Figure 19. TRNSAT - Job Control Deck Structure

3.8.3 SATSIM (Simulator). SATSIM may be executed in one of two modes. Mode 1 reads an input game tape (TSOTAP or SMOTAP) and performs the tasks listed below. Mode 2 reads an input game tape (TSOTAP or SMOTAP) and input arrays (ACCHAR, ACFTAS, ACTION, DECISN, NEWTOE, NUCAFT, PREPLN and ROUNDS) and performs the following tasks:

a. Chooses targets to be acquired during the current interval and assigns acquisition times.

b. Processes events which include weapon allocation, damage assessment, delayed casualties, and counter-battery operations.

c. Calculates the position of a new FEBA.

d. Creates a SMOTAP game tape containing all relevant information to run subsequent cycles.

Figures 23, SATSIM Integrated ADP Flowchart, 24, SATSIM Input Control Cards, and 25, SATSIM Job Control Deck Structure, depict the information required to prepare and submit a SATAN III SATSIM run.

3.8.4 OUTSAT (Output Processor). OUTSAT reads an input game tape (SMOTAP) and generates ten tables of time-ordered fixed summaries depicting the final status of the related game cycle. The time-ordered fixed summaries were described in subsection 3.6, Output Requirements, and 3.7, Output Formats, Samples, and Utilization.

Figures 26, OUTSAT Integrated ADP Flowchart, and 27, OUTSAT Job Control Deck Structure, depict the information required to prepare and submit a SATAN III OUTSAT run.

3.8.5 Combination Runs. It is possible to run SATAN III programs in combination; however, such a practice is discouraged. To do so does not permit the user to follow the progress of the processing. Combination runs also require large amounts of computer resources not often available. If combinations are desired, make each module run a separate activity.

SATSIM PRINT CARD

Function: This card controls the type of output during SATSIM exection.

Format:

Headings & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	PRINT
Data 20-23	No Print	Identifies the type of output desired. E/Events, M/Monitor (Program begins and ends), R/ Reports, and U/Unit Status, left justified.

SATSIM STHOUR 0

Function: This card controls the number of hours of a SATAN III cycle.

Format:

Headings & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	STHOUR
Data 20-22	0	Number of hours of this cycle, right justified.

Figure 24. SATSIM - Input Control Cards (Part 1 of 9)

SATSIM RANDOM 0000000373

Function: This card contains the initial number for the random number generator in the SATSIM subsystem. This card will be needed if SATSIM is to run with other than the default number.

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	RANDOM
Data 20-29	373	Initial number for random number generator, right justified

SATSIM DOSE 650

Function: This card contains the number of rads considered lethal. This card will be needed if SATSIM is to run with other than the default value.

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	DOSE
Data 20-23	650	The number of rads considered lethal

Figure 24. (Part 2 of 9)

SATSIM GMSTRT 0360

Function: This card controls the starting time of the SATAN III game, in minutes.

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	GMSTRT
Data 20-23	0360	Starting time of this cycle of the game, in minutes past midnight, right justified

SATSIM DYSTRT 0360

Function: This card controls the starting time of daylight, in minutes, in a SATAN III game.

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	DYSTRT
Data 20-23	0360	Starting time of daylight, in minutes past midnight, right justified

Figure 24. (Part 3 of 9)

SATSIM NTSTRT 1080

Function: This card indicates starting time, in minutes, of darkness in a SATAN III game.

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	NTSTRT
Data 20-23	1080	Starting time, in minutes past midnight, of darkness, right justified

SATSIM MAXHRS 9999

Function: This card controls the maximum game time, in hours, for which a delayed casualty event will be written.

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	MAXHRS
Data 20-23	9999	The maximum time, in hours, for which a delayed casualty event will be written.

Figure 24. (Part 4 of 9)

SATSIM ALOTIM 0030

Function: This card defines the length of time, in minutes, before attempting a reallocation of a weapon to an acquired target.

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	ALOTIM
Data 20-23	0030	Length of time, in minutes, between attempts to reallocate a weapon to a target, right justified

SATSIM OFFSET 100

Function: This card establishes the minimum overlap of the effect radius below which offset targeting will not be attempted.

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	OFFSET
Data 21-23	100	Percent of target overlap below which offset targeting will not be attempted.

Figure 24. (Part 5 of 9)

SATSIM RADMUL 0082

Function: This card contains the multiplier of the equation to calculate radiation dosage (RAD). If accumulated radiation is not to be gamed, enter a zero in column 23.

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	RADMUL
Data 20-23	0082	Multiplier of the equation to calculate radiation dosage, right justified

SATSIM RADNUM 3510

Function: This card contains the numerator of the equation to calculate radiation dosage (RAD).

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	RADNUM
Data 20-23	3510	Numerator of the equation to calculate radiation dosage, right justified

Figure 24. (Part 6 of 9)

SATSIM RADEXP 0.61

Function: This card identifies the exponent to be used in the equation to calculate radiation dosage (RAD).

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	RADEXP
Data 20-23	0.61	Exponent of the equation to calculate radiation dosage, right justified

SATSIM DELCAS 0

Function: This card controls the processing of postgame delayed casualties.

Format:

Heading & Column	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	DELCAS
Data 23	0	Marker indicating that postgame delayed casualties will or will not be processed. 0/do not process, 1/process postgame delayed casualties

Figure 24. (Part 7 of 9)

SATSIM REDIST 1440

Function: This card defines the time for redistribution of aircraft.

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	REDIST
Data 20-23	1440	Length of time, in minutes, for redistribution of aircraft

SATSIM RESTART 999

Function: This card defines the time at which a restart tape will be written.

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-17	N/A	RESTART
Data 20-22	1440	The time, in hours, at which a restart tape will be written

Figure 24. (Part 8 of 9)

SATSIM DELAY 0020

Function: This card defines the length of time, in minutes, before doing apparent damage to a target that has been damaged.

Format:

Heading & Columns	Default	Description
Subsystem Name 1-6	N/A	SATSIM
Card Name 11-16	N/A	DELAY
Data 20-22	0020	Length of time, in minutes, between damage and apparent damage, right justified

END DATA

Function: This card acts as a terminator for control decks.

Format:

Columns	Description
1-3	END
5-8	DATA

Figure 24. (Part 9 of 9)

```
1       8         16                                (CARD COLUMNS)
```

```
$       IDENT     4883,SATSM,235,RHARRIS,672,13*
$       USERID    USERID$PASSWORD/CLASSIFICATION
$       LIMITS    CPU time,90K,,lines of output
$       PARAM     P1,P2,P3,P4
$       SELECT    674DPI00/RALPH/SATCON
   SATSIM Control Cards
END DATA
   Input Arrays
END DATA
$       ENDJOB
***EOF
```

P1 = Input tape reel number
P2 = Output tape reel number
P3 = Processor run time in hundredths of hours
P4 = Maximum printer output in lines.

* The badge number and the USERID are those of the requester.

Figure 25. SATSIM - Job Control Deck Structure

```
1         8         16                                  (CARD COLUMNS)

$         IDENT     4883,OUTST,235,RHARRIS,672,13*
$         USERID    USERID$PASSWORD/CLASSIFICATION
$         LIMITS    CPU time,50K,,lines of output
$         PARAM     P1,,P3,P4
$         SELECT    674DPI00/RALPH/OUTCON
$         ENDJOB
***EOF
```

P1 = Input tape reel number
P3 = Processor run time in hundreths of hours
P4 = Maximum print output in lines

* The badge number and the USERID are those of the requester.

Figure 27. OUTSAT - Job Control Deck Structure

ITEM NAMES - VARIABLE NUMBERS AND PRINT FIELD NUMBERS			REPORT IDENTIFICATION AND REPORT NUMBERS									
			13	14	15	16	17	18	19	20	21	22
ITEM/V-NUMBER CROSS REFERENCE												
ALPHA SEQUENCE			V-NO. SEQ.									
NAME	V-NO.	PRINT FIELD	V-NO.	NAME	FAILURE TO ALLOCATE	POST-GAME DELAYED CASUALTIES	WITHDRAWN UNITS	PROJECTED DELAYED CASUALTIES	AIRCRAFT ATTRITION	AIRCRAFT RECOVERY	AVAILABLE AIRCRAFT	AIRCRAFT MOVED TO ACTIVE TARGETS	FAILURE TO ACQUIRE DUE TO DECISION	AIRCRAFT REMOVED FROM BROKEN TARGETS
RP				RP										
ACFT	29	30	01	TIME	X	X	X	X	X	X	X	X	X	X
ADUR	32	27	02	CODE	X	X	X	X	X	X	X	X	X	X
AHOB	33	21	03	SIDE	X	X	X	X	X	X	X		X	
APCS	27	31	04	SECT	X	X	X	X	X	X	X		X	
ARTY	28	34	05	ZONE	X	X		X			X		X	
CODE	02	2	06	DPAR	X	X		X			X	X	X	X
CRND	35	23	07	TLVL	X	X	X	X			X		X	
DHOB	22	20	08	TUNT	X	X	X	X	X		X		X	
DPAR	06	5	09	TGTN	X	X		X	X		X	X	X	X
FABR	24	28	10	TTYP	X	X		X	X		X	X	X	X
LCHN	13	15	11	LLVL				X	X	X	X			
LLVL	11	13	12	LUNT	X		X	X	X	X	X			
LUNT	12	14	13	LCHN				X	X	X	X			
LXCO	18	16	14	WSYS				X	X		X			
LYCO	19	17	15	YELD			X	X			X			
PERS	25	29	16	TXCO	X		X	X			X	X	X	X
PPAM	21	25	17	TYCO	X		X				X		X	
PROB	20	26	18	LXCO						X				
RADE	23	24	19	LYCO						X				
SAMS	30	33	20	PROB							X		X	
SECT	04	4	21	PPAM	X						X	X	X	X
SIDE	03	3	22	DHOB								X		X
TGTN	09	9	23	RADE								X		X
TIME	01	1	24	FABR	X	X						X	X	X
TLVL	07	7	25	PERS	X	X		X	X		X	X		X
TNKS	31	32	26	TRKS										
TRKS	26	35	27	APCS	X			X	X					
TRND	34	22	28	ARTY							X			
TTYP	10	10	29	ACFT	X			X	X	X				
TUNT	08	8	30	SAMS	X							X		X
TXCO	16	11	31	TNKS	X			X				X		X
TYCO	17	12	32	ADUR	X			X				X	X	X
WSYS	14	18	33	AHOB	X			X						
YELD	15	19	34	TRND										
ZONE	05	6	35	CRND				X						

Figure 29. (Part 2 of 2)

Report. Ten types of parameter cards are provided for use in preparing an individual query. These cards are: REPORT NAME, REPORT TYPE, SELECT ITEM, TALLY ITEM, PRINT ITEMS, SORT ITEMS, SUBTOTAL, GENERATE, HEADER NAME, and CONSTANT. Each of the parameter cards is described separately in the following subsections.

4.3.1 REPORT NAME Card. The user specifies by no more than two of these cards the name of the report and any other identifying information the user wants to include. The entire contents of columns 21 through 80 of the card(s) will appear exactly as punched by the user on both the top and bottom of each page of the printed output report. Card 1 information will precede card 2 information in a single-line report identifier printed at the top and bottom of each report page. The card format is as follows:

Columns	Contents
1-11	REPORT NAME
16	Card number which must be "1" or "2"
21-80	If column 16 contains a "1", then the report identification (title) is in the first 60 print positions of a line. If column 16 contains a "2", a continuation of the title is in the next 60 print positions of the same line

4.3.2 REPORT TYPE Card. The user specifies by one control card which of the 21 possible Report arrays will be the basis for providing columnar headings for non-generated print fields for this output report. The user must be critical in the selection of the report type. The indicated report should be representative of as many as possible data elements to be printed in order to print columnar headings identifying non-generated printed data elements. Only one report type may be specified on a REPORT TYPE control card. The card format is as follows:

Columns	Contents
1-11	REPORT TYPE
19-20	Report type number, any integer 1 through 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, or 22, right justified

4.3.3 SELECT ITEM Card. The selection of data for retrieval is controlled by one or more SELECT ITEM cards. By means of these cards the user formulates his query. The selection

c. Parameter Cards.

```
REPORT NAME     1    TIME HISTORY OF RED DIVISION
REPORT NAME     2    PERCENT CASUALTIES UN-15
REPORT TYPE        05
SELECT ITEM     1    1 V02 EQ        5.
SELECT ITEM     1    1 V08 EQ       15.
SELECT ITEM     2    1 V02 EQ       11.
SELECT ITEM     2    1 V08 EQ       15.
PRINT ITEMS     T      V01,V25
SORT ITEMS             V01
SUBTOTAL      V01      V25
CONSTANT      C01         11840.
CONSTANT      C02           100.
GENERATE      V01      1 G11 = V25 / C01
GENERATE      V01      2 G12 = G11 * C02
GENERATE      V01      3 G13 = G13 + G12
GENERATE      V01      4 G14 = G14 + V25
GENERATE      V01      5 G15 = G14 / C01
GENERATE      V01      6 G16 = G15 * C02
HEADER NAME              G13     UNIT 15  PERCENT CAS
HEADER NAME              G16     UNIT 15  CASUALT TDT
```

d. Resultant Output.

TIME HISTORY OF RED DIVISION PERCENT CASUALTIES UN-15

	CYCLE TIME	PER-SONNEL CASU-ALTIES	UNIT 15 PERCENT CAS	UNIT 15 CASUALT TDT	
SBTLS	1	2	0.02	0.02	
SBTLS	40	4	0.03	0.05	
SBTLS	48	40	0.34	0.39	
SBTLS	51	184	1.55	1.94	
SBTLS		230	1.94	3.89	(See Note)

Note: When generated items are requested, the user must evaluate the results prior to use, as meaningless subtotals may be generated. These values are a result of a "blind" application of the user's GENERATE cards. In the example, subtotals are to be computed and printed on each change in item V01 (time). Generated results are meaningful through the last time (51). On the final line, item G16 is not meaningful as QUERY evaluates each GENERATE statement based on the values in that line. At this time, the value in V25 reflects

```
1    8          16                                  (CARD COLUMNS)
$    IDENT      4883,QUERY,235,RHARRIS,672,13*
$    USERID     USERID$PASSWORD/CLASSIFICATION
$    LIMITS     CPU time,55K,,lines of output
$    PARAM      P1,,P3,P4
$    SELECT     674DPI00/RALPH/QRYCON
 QUERY Control Cards
END
$     ENDJOB
***EOF
```

P1 = Input tape reel number
P3 = Processor run time in hundredths of hours
P4 = Maximum printer output in lines

* The badge number and the USERID are those of the requester.

Figure 31. QUERY - Job Control Deck Structure

```
1      8          16                                  (CARD COLUMNS)
$      IDENT      4883,FILTP,235,RHARRIS,672,13*
$      USERID     USERID$PASSWORD/CLASSIFICATION
$      LIMITS     CPU time,32K,,lines of output
$      PARAM      P1,P2,P3,P4
$      SELECT     674DPI00/RALPH/FILCON
   FILETP control card
   FILETP data
ENDOPERATION
$      ENDJOB
***EOF
```

P1 = Input tape reel number
P2 = Output tape reel number
P3 = Processor run in hundredths of hours
P4 = Maximum printer output in lines

* The badge number and the USERID are those of the requester.

Figure 34. FILETP - Job Control Deck Structure

```
1      8          16                                (CARD COLUMNS)

$      IDENT      4883,PLOTR,235,RHARRIS,672,13*
$      USERID     USERID$PASSWORD/CLASSIFICATION
$      LIMITS     CPU time,70K,,lines of output
$      PARAM      P1,P2,P3,P4
$      SELECT     674DPI00/RALPH/PLTCON
   Plot control cards
$      ENDJOB
***EOF
```

P1 = Input tape reel number
P2 = Output tape reel number
P3 = Processor run time in hundredths of hours
P4 = Maximum printer output in lines

* The badge number and the USERID are those of the requester.

Figure 37. PLOT - Job Control Deck Structure

SECTION 7. OUTSRT - SORT AND PREPARE FINAL STATUS REPORTS

OUTSRT reads user control cards and an output game tape (SMOTAP), sorts relevant information according to user specifications, and generates nine summary reports depicting the final status of the related game cycle. (See figure 38, OUTSRT - Integrated ADP Flowchart.) The user may specify at the time of use the ordering of the lines of data printed in the fixed summaries, except for the Ammunition Status Summary, in as many different orderings as the user requires. AMSTAT cannot be reordered. A maximum of 10 variables (V-numbers) may be specified. V-numbers and their descriptions are listed in subsection 3.7, Output Formats, Samples and Utilization, REPORT01 for Target Acquisitions Summary, REPORT03 for Weapon Allocations Summary, REPORT04 for Actual Ground Zeros Summary, REPORT05 for Damaged Targets Summary, REPORT14 for Delayed Casualties, REPORT17 for Aircraft Attrition Summary, REPORT18 for Aircraft Recovery Summary, REPORT19 for Apparent Damage Summary, and REPORT20 and REPORT22 for Redistribution of Aircraft Summary. One control card is required for each desired reordering. The control card format for OUTSRT is depicted in figure 39, OUTSRT Control Card.

The Job Control Language required for the processing of an OUTSRT run is depicted in figure 40, OUTSRT - Job Control Deck Structure.

```
1     8          16                              (CARD COLUMNS)
```

```
$     IDENT      4883,OTSRT,235,RHARRIS,672,13*
$     USERID     USERID$PASSWORD/CLASSIFICATION
$     LIMITS     CPU time,45K,,lines of output
$     PARAM      P1,,P3,P4
$     SELECT     674DPI00/RALPH/SRTCON
   OURSRT control cards
END DATA
$     ENDJOB
***EOF
```

P1 = Input tape reel number
P3 = Processor run time in hundredths of hours
P4 = Maximum printer output in lines

* The badge number and the USERID are those of the requester.

Figure 40. OUTSRT - Job Control Deck Structure

```
1       8               16                              (CARD COLUMNS)
$       IDENT           4883,GENHB,235,RHARRIS,672,13*
$       USERID          USERID$PASSWORD/CLASSIFICATION
$       LIMITS          CPU time,32K,,lines of output
$       PARAM           ,,P3,P4
$       SELECT          674IDP00/RALPH/GENCON
    GENHOB control cards
$       ENDJOB
***EOF
```

P3 = Processor run time in hundredths of hours
P4 = Maximum printer output in lines

* The badge number and the USERID are those of the requester.

Figure 44. GENHOB - Job Control Deck Structure

```
1       8               16                              (CARD COLUMNS)
|$      IDENT           4883,SUMSM,235,RHARRIS,672,13*
|$      USERID          USERID$PASSWORD/CLASSIFICATION
|$      LIMITS          CPU time,80K,,lines of output
|$      PARAM           P1,,P3,P4
|$      SELECT          674IDP00/RALPH/SUMCON
|$      ENDJOB
***EOF
```

P1 = Input tape reel number
P3 = Processor run time in hundredths of hours
P4 = Maximum printer output in lines

* The badge number and the USERID are those of the requester.

Figure 46. SUMSUM - Job Control Deck Structure

NAME	DESCRIPTION
FILTGT	Provides input data for a target type to TARTBL.
GENCEN	Computes end points of sector center line and point on center line representing location of the FEBA.
GENDPA	Generates the array DPADIM which contains deployment area dimensions.
GENERA	Controls the printing and clearing of levels of subtotals and controls the computing and printing of generated items from each level of subtotals in the subsystem QUERY.
GENHOB	An independent subsystem which develops the array HOBRAD.
GENSEC	Generates sector boundary points.
GETBIT	Unpacking a computer word.
GETHOB	Reads into HOBRDL and HOBRDH segments of the array HOBRAD.
GETLIN	Selects line of TARTBL for printing in Unit Status Summary
GETNXU	Randomly selects unit to start search for a launcher and will step through all units in the array STUNIT, if a launcher isn't found.
GETTAR	Reads specified TARTBL array from disk to core.
GETTCL	Selects line of TCLASS.
GETTOE	Generates NEWTOE array based on card input.
GNTART	Controls logic for generating the array TARTBL and automatic deployment of targets.
GZOFST	Computes an offset DGZ.

NAME	DESCRIPTION
RDSTRA	Scans card images.
RDSVEC	Checks to see if requested section of TARTBL array is in core.
RDTARS	Copies the array TARTBL from tape to disk.
RDTART	Controls the flow of logic for reading a specific TARTBL array from disk to core.
READQU	Reads query input cards in subsystem QUERY.
REALOC	Redistributes aircraft from broken targets to active targets.
RELACF	Prepares the Aircraft Redistribution Summary.
RESTRT	Controls the flow of logic for writing a restart tape.
SATSIM	SATSIM is the main control for the SATAN III Simulator.
SCARDS	Reads control cards for SATSIM.
SCTOSD	Adds sector data to side data.
SELECT	Reads reports from the SMOTAP tape, appends parameter data, selects records to be used, and writes them onto Disk File 51.
SETACT	Determines which line of the ACTION table is to take over control of the Simulator for a given sector.
SETCAS	Initializes the array CASMAX.
SETCPX	Initializes a null TARTBL array for all possible organizational units and for each in the current game it places the target complexes into TARTBL.
SETCUC	Gives unit extremes for X- and Y-coordinates.
SETDEC	Initializes the array DECCNT.
SETLCH	Places available launchers in the LCHSTA array.
SETSUB	Sets up the subtotal accumulation table in subsystem QUERY.
SETUNT	Locates centers of organizational units within a deployment area and develops basic TARTBL data for each unit.

APPENDIX E

ERROR MESSAGES

ROUTINE	FORMAT
ACFSUM	NO REPORTS FOUND ON TAPE TOO MANY REPORTS FOUND WILL USE FIRST 10000
ACQTGT	CONSIDERED XXXXX ACQUIRED XXXXX
ADJACF	NUCLEAR RESERVE BELOW INPUT FACTOR SIDE X SECTOR XX UNIT XXX
AGZSUM	NO REPORTS FOUND ON TAPE TOO MANY REPORTS FOUND WILL USE FIRST 10000
AIRSCH	AIRSCH ERROR - AIRCRAFT TYPE = XX VELOCITY = XXXX
ALOCON	TOO MANY LINES FOR A GIVEN TARGET CLASS HAVE EVENT FOR XXX XXX XXX THAT IS UNACQ
ALOWPN	UNABLE TO FIND OLD EVENT ALOWPN WARNING.WECRND = 0 ALOWPN WARNING.WETRND = 0 ALOWPN - NO AIRCRAFT XXX XXX ALOWPN - LCHUNT = XXX LCHLIN = XXX IXAU = XXX IXVA = XXX
APPSUM	NO REPORTS FOUND ON TAPE TOO MANY REPORTS FOUND WILL USE FIRST 10000
ASSESS	ERROR - ASSESS TGT. X AND Y COORD. ZERO
ATTSUM	NO REPORTS FOUND ON TAPE TOO MANY REPORTS FOUND WILL USE FIRST 10000
BOUNDS	WRONG PLOT TYPE FOUND UNIT XXX NOT FOUND
BRKTGT	BRKTGT NO FIRE AGAINST XXX XXXX BRKTGT NO FIRE BY XXX XXX
CBPLAY	LAUNCHER CANNOT MOVE LAUNCHER TYPE IS ZERO LAUNCHER MOVEMENT RATE IS ZERO
CHECKG	MORE THAN SUBTOTALS REQUESTED

CROSSX	ENTRY OF TALLY LIST IS OUT OF RANGE ENTRY OF PRINT LIST IS OUT OF RANGE GENERATED ITEM CALLS FOR SORT KEY BUT NO SORT WAS SPECIFIED
CROSPT	ERROR - CROSPT
DGZRTN	DGZRTN ERROR - RECRND GREATER THAN RETRND DGZRTN ERROR - RETRND EQUALS ZERO DGZRTN ERROR - RETRND GREATER THAN EIGHT DGZRTN ERROR - RECRND GREATER THAN EIGHT
DUMTBL	TABLE NOT IN SRDESC NONSTANDARD FORMAT INCORRECT DATA TYPE ONLY FIRST 21 ITEMS WILL BE PRINTED INTERNAL CHECK ERROR
DUMBND	ARGUMENT PASSED TO DUMBND TOO HIGH
DUMDPA	FIRST ARGUMENT PASSED TO DUMDPA IS TOO HIGH SECOND ARGUMENT PASSED TO DUMDPA IS TOO HIGH THIRD ARGUMENT PASSED TO DUMDPA IS TOO HIGH
FEBADJ	REMAINING PERSONNEL ZERO, SIDE = XX XX
FILETP	CARD INPUT DOES NOT END WITH END OPERATION CARD EXECUTION CONTINUES, CHECK OUTPUT A STODECK CARD WAS DETECTED WITHOUT A DECK IDENTIFIER CARD FOLLOWING CONTROL CARD INDICATED IS IGNORED. SKIPPING TO NEXT OPERATION CARD AN ERROR HAS BEEN DETECTED IN THE CARD FOLLOWING A DELDECK, PRTFILE, OR A PCHFILE CONTROL CARD THE ERROR CARD IS ---- ---- ERROR - SYSTEM DETECTS EOF BEFORE THE TABLE OF CONTENTS HAS BEEN COMPLETELY READ THIS INPUT TAPE IS INCOMPLETE, TRY RECREATING TAPE. EXECUTION TERMINATED A REPLACE ACTION WAS INITIATED BUT THE DECK TO BE REPLACED COULD NOT BE FOUND YOU HAVE SPECIFIED AN ACTION OTHER THAN A STODECK IN A CREATE RUN ERROR ON DISK, EXECUTION TERMINATING
FILEVN	FILEVN ERROR XX
GENCEN	GENCEN ERROR - SECTOR = XXXX

GENHOB	ARRAY NAME IN ERROR DATA ERROR CATEGORY
GETHOB	GETHOB - YIELD REQUESTED NOT IN RANGE OF HOBRAD
GETNUC	ERROR - VALUE - NFAFRS ERROR - SECTOR ERROR - INDEX ERROR - SIDE
GETTOE	ERROR - PERCENTAGE ERROR - UNIT ERROR - INDEX
GENSEC	WARNING - ONLY ONE POINT WAS INPUT FOR SECTOR BOUNDARY WARNING - THEATER IMPROPERLY CONSTRUCTED - AN INTERNAL ANGLE IS GREATER THAN 180 DEGREES
HEVENT	GETEVN TIME ERROR XXXX PUTEVN TIME ERROR ON CODE XX XXXX XXXX XXXX PUTEVN ALL SLOTS FULL XXXX DELEVN BAD RECORD NUMBER XXXX
HLDPAR	ERROR - INDEX ERROR - XXXXXX XXXX
INPOBJ	INPOBJ - END OF FILE ON TAPE - FATALE ERROR ERROR - NAME ERROR - ORDER ERROR - INDEX ERROR - XXX CARD INPUT DOES NOT END WITH 'END DATA' CARD
INPRMT	INPRMT - UNABLE TO READ INPUT TAPE INPRMT - WRONG IDENT ON INPUT TAPE EXPECTED - SATNVRSN FOUND - XXXXXXXX INPRMT - ERROR READING INPUT TAPE - WILL RETRY INPRMT - END OF FILE ON INPUT BEFORE PARAMS - WILL RETRY INPRMT - ERROR IN SKIPPING RECORDS - CHECK RESULTS INPRMT - TROUBLE READING PARAMS AS FOLLOWS NEEDED - CXCHAR TPRDIS TRCHAR FOUND -
LAYOUT	ERROR - PLOT REQUEST XX HAVE OPERATOR MOVE PAPER AFTER TAPE BLOCK XXXX
LOSSAC	LOSSAC XXXX XXXX XXXX

OPFPAR	OPFPAR END OF FILE
	OPFPAR PREMATURE TRAILER
	OPFPAR WRONG TABLE READ XXXXXXXX
	OPFPAR PARCON NOT FOUND XXXXXXXX
OPIPAR	END OF FILE
	WRONG TABLE READ XXXXXXXX
	PREMATURE TRAILER
	PARCON NOT FOUND XXXXXXXX
	TRAILER NOT FOUND
ORDERG	SUBSTITUTION LEVEL NUMBERS INCOMPATIBLE
	SUBSTITUTION OF ITEM INTO ITSELF IS NOT ALLOWED
	FORMULAS ARE RECURSIVE
OUTSAT	OUTSAT ERROR
OUTSRT	OUTSRT ERROR X
	CARD READ ERROR - TASK IGNORED
	TASK NOT IN LIST
	KEY NOT IN LIST
OUTSUM	ERROR X
PCLASS	ERROR IN CLASSIFICATION
PERPPT	ERROR - PERPPT
PLDTOC	ERROR XXXXXXXX XXXXXXXX
PLREAD	PLOT REQUEST IGNORED
	INVALID PLOT TYPE ON
	INVALID BOUNDARIES REQUESTED ON
	INVALID SCALE REQUESTED ON
	INVALID SECTOR REQUESTED ON
	INVALID UNIT ID REQUESTED ON
	NUMBER OF PLOT REQUESTS EXCEED MAXIMUM
	A NON-NUMERIC CHARACTER APPEARS IN A NUMERIC FIELD
PLTBAR	LAYOUT ERROR IN BAR GRAPH PLOT
PLTCON	CLASSIFICATION ERROR
	SATAN - PLOTTER SMOTAP ERROR
PLTLRG	ERROR IN PSCALE
	ERROR IN LAYOUT
	ERROR IN BOUNDS
	SEARCHING FOR REPORTS, FOUND EOF

PLTTHR	ERROR OCCURRED IN PSCALE, PLOT TERMINATING ERROR OCCURRED IN LAYOUT, PLOT TERMINATING ERROR OCCURRED IN BOUNDS, PLOT TERMINATING
PLTTOD	END OF FILE ON TAPE SMOTAP ERROR
PLTUNT	UNIT XXXX DOES NOT EXIST IN FORSTR TABLE ERROR OCCURRED IN PSCALE PLOT TERMINATING ERROR OCCURRED IN LAYOUT PLOT TERMINATING ERROR OCCURRED IN BOUNDS PLOT TERMINATING UNIT XXX NOT IN TARTBL SEARCHING FOR REPORTS, FOUND EOF ERROR IN PTCIRL UNIT XXX DOES NOT EXIST IN TARTBL
POINTD	ERROR - POINTD
PPDOCT	TARGET CLASS CALLED FOR NOT IN TCLASS TOO MANY LINES FOR A GIVEN TARGET CLASS
PPLCON	TARGET SELECTED ALREADY UNDERFIRE XXXX XXXX *TARGET SELECTED IS BROKEN XXXX XXXX* TARGET SELECTED IS A COMPLEX XXXX XXXX UNIT NOT SPECIFIED PREPLN NO. = XXXX NO TARGET, COMPLEX TYPE OR TARGET NO. PREPLN = XXXX
PPNORM	UNABLE TO FIND OLD EVENT
PSCALE	ERROR IN SPECIFIED SCALE
PSTCAS	NO REPORTS FOUND ON TAPE
PTCIRL	PTCIRL ERROR
PUTCPX	ERROR - PUTCPX - TARTBL FULL ERROR - PUTCPX - FIXED COMPLEX
PUTTAR	ERROR - PUTTAR - TARTBL FULL
QCPYRP	NO REPORTS FOUND ON TAPE QCPYRP - NUMBER OF REPORTS QCPYRP - ERROR IN SKIPPING RECORDS ON SMOTAP
QUERY	FATAL ERROR - QUERY IGNORED CANNOT READ PARAM TABLES
RANRSK	ERROR IN COEFFS ARRAY

RANDU	STARTING RANDOM NUMBER = 0
RDBLCK	RDBLCK ERROR - UNIT XXX HAS MISSING SECTION RDBLCK ERROR - UNIT XXX SECTION X BLOCK XX MISSING RDBLCK ERROR - UNIT XXX SECTION X HAS MISSING BLOCK
RDEVEN	RDEVEN END OF FILE RDEVEN DATA ERROR
RDHOBL	RDHOBL END OF FILE RDHOBL TOO MANY YIELDS WRONG ARRAY FOUND
RDPARS	RDPARS SMITAP ERROR SMITAP ERROR XXXXXXXX SMITAP ERROR
RDREPT	RDREPT ERROR
RDSEQN	RDSEQN ERROR - UNIT XXX TARGET XXX MISSING
RDSVEC	RDSVEC ERROR - READ UNIT XXX WANTED UNIT XXX RDSVEC ERROR - *REQUESTED UNIT* XXX MISSING RDSVEC ERROR - UNIT XXX OVERWRITTEN BY UNIT XXX RDSVEC ERROR - LAST UNIT READ WAS UNIT XXX RDSVEC ERROR - FOUND BAD UNIT XXX IN CORE RDSVEC ERROR - REQUESTING BAD UNIT XXX
RDTARS	RDTARS END OF FILE RDTARS DATA ERROR
RDTART	RDTART ERROR - INVALID MODE XX RDTART ERROR - REQUESTING UNIT XXX BAD TARGET XXX
READQU	*****ERROR IN THE FOLLOWING CARD *****ILLEGAL CARD TYPE *****THE ABOVE CARD HAS AN UNRECOGNIZED CODE (CC26, 27) *****THE ABOVE TALLY ITEM CARD CANNOT HAVE A TALLY SEQUENCE NUMBER OF ONE *****THE ABOVE CARD HAS AN UNRECOGNIZED CODE (CC 28) *****THE ABOVE CARD HAS AN UNRECOGNIZED CODE (CC34) *****THE ABOVE CARD HAS AN UNRECOGNIZED CODE (CC32) CONSTANT DESIGNATOR OUT OF RANGE OR DUPLICATED MORE THAN XXX SELECT AND/OR TALLY CARDS. EXCESS IGNORED MORE THAN XX HEADER CARDS. EXCESS IGNORED MORE THAN XX GENERATE CARDS. EXCESS IGNORED

REALOC	REALOC ERROR - TOO MANY AIRFIELDS
RELACF	NO REPORTS FOUND ON TAPE TOO MANY REPORTS FOUND - WILL USE FIRST 10000
SATREP	SATREP - ERROR HIT ON OPITAP SATREP - EOF HIT ON OPITAP
SATSIM	SATSIM ENDED BY FATAL ERRORS SATAN - SATSIM SMITAP ERROR SATAN - SATSIM - RANDOM PRIMER IS ZERO
SCARDS	EOF FOUND WHILE READING CONTROL CARDS CONTROL CARD ERROR - CLASSIFICATION ERROR IN CONTROL CARDS
SELECT	MORE THAN 10000 RECORDS SELECTED BAD RELATIONAL XXXX XXXX XXXX XXXXXXXX EOF HIT BEFORE END OF DATA ERR HIT BEFORE END OF DATA
SETSUB	SUBTOTAL CARD HAS A SORT KEY VARIABLE NUMBER NOT FOUND ON THE SORT ITEMS CARD
SETUNT	ERROR - SETUNT - EXCESS LEVEL XX
SMDTC1	ERROR XXXXXX XXXXXX
SMDTC2	ERROR XXXXXX XXXXXX
SMDTC3	ERROR XXXXXX XXXXXX
SMPARS	SMPARS SMITAP ERROR X SMITAP ERROR XXXXXXXX SMITAP ERROR
SMTTOD	SMTTOD SMITAP ERROR
SORTEX	CALL DATA ERROR - SORT NOT DONE TOO MANY BLOCKS TO MERGE - PUTVAL TOO MANY BLOCKS TO MERGE - MRGCHN TOO MANY RECORDS FOR CHAIN CHAINING OVERRUN MRGCHN TABLE OVERFLOW MRGCHN OUT OF RANGE
SORTIN	ERROR - NONSTANDARD FORMAT XXXX XXXX ERROR - TABLE NOT DESCRIBED IN SRDESC ERROR - KEY NOT IN SRDESC XXXXXXXX XXXX ERROR - NO KEYS SPECIFIED

SUFPAR	END OF FILE PREMATURE TRAILER WRONG TABLE READ PARCON NOT FOUND
SUMCON	MORE THAN 10000 RECORDS REPORTS OR SXUNIT NOT SORTED NO REPORTS TO PROCESS
TARUNP	TARUNP ERROR - UNIT XXX SECTION X READ BLOCK XX WANTED BLOCK XX
TCARDS	EOF FOUND WHILE READING CONTROL CARDS CONTROL CARD ERROR CLASSIFICATION ERROR IN CONTROL CARDS
TGTACQ	TOO MANY REPORTS FOUND - WILL USE FIRST 10000 NO REPORTS FOUND ON TAPE
TGTDAM	NO REPORTS FOUND ON TAPE TOO MANY REPORTS FOUND WILL USE FIRST 10000
TGTPOS	TGTPOS *CANNOT FIND EVENT TYPE* 2 FOR TARGET = UNIT = XXX
TICPNT	ERROR
TRNSAT	INPOBJ FOUND XX FATAL ERRORS
TSDOTC	TSDOTC ENDS - FATAL ERRORS XX TSDOTC ERROR XXXXXXXX XXXXXXXX TSDTOC DISK READ ERROR XXXXXX XXXXXXXX NOT ON DISK
TSRDTP	DECK NAME XXXXXX VERSON XXXX IS NOT ON THE INPUT TAPE. EXECUTION WILL TERMINATE AT END OF TAPE SCAN DECK NAME CONTROL CARDS DO NOT END WITH 'END DATA' CARD. EXECUTION CONTINUING CHECK OUTPUT END OF FILE ON TAPE WAS ENCOUNTERED BEFORE TABLE OF CONTENTS WAS COMPLETELY READ EXECUTION TERMINATING END OF FILE ON TAPE WAS ENCOUNTERED BEFORE ALL DECKS WERE FOUND

UDRDCD	ERROR - NAME ERROR - ORDER ERROR - INDEX ERROR - NUMBER-OF-CARDS ERROR - UPDATE CARD INPUT DOES NOT END WITH 'END DATA' CARD
UDTOES	UNIT XXXX NOT USED. ATTEMPT TO SET % T.O.E. AT XXXX TARGET XXXX OF UNIT XXXX BREAKS WITH NEW % OF T.O.E. OF XXXX
WPNASG	NO REPORTS FOUND
WRHOBR	WRHOBR - TOO MANY FOR XXX.XX WRHOBR - HOBRAD NOT INPUT
WRPARS	WRPARS DISK READ ERROR
WTAPND	WTAPND ERROR - INVALID MODE XX WTAPND ERROR - UNIT XXX SECTION X FULL
WTBLCK	WTBLCK ERROR - UNIT XXX HAS MISSING SECTION
WTTART	WTTART ERROR - EXPECTING UNIT XXX FOUND UNIT XXX

GAME VERSION = OPER
GAME CYCLE = 1

AIRCRAFT REDISTRIBUTION
SATAN III

LINE	TIME	SIDE	SECT	DPA	AIRCRAFT ECH LVL	AIRCRAFT UNIT NBR	TGT TGT NBR	TGT BASE X-COOR	TGT BASE Y-COOR	STA-TUS	ACFT TYPE	ACFT RECD	ACFT LOST
1	60	BLUE	2	4	AIR	31	10	8600	9400	2	1	53	0
2	60	BLUE	2	3	AIR	31	9	11000	8350	4	1	0	27
3	60	BLUE	2	5	AIR	31	11	10850	3700	6	1	0	26
4	60	RED	3	2	AIR	47	18	19964	7728	1	2	29	0
5	60	RED	3	3	AIR	47	19	20562	9113	1	2	28	0
6	60	RED	3	2	AIR	37	18	16200	10400	4	2	0	27
7	60	RED	3	3	AIR	37	19	17900	10250	4	2	0	30

PAGE 1
RELACF ENDS

Figure 91. Aircraft Redistribution - Sample Output

DISTRIBUTION

Addressee	Copies
CCTC Codes	
C124 (Record)	1
C124 (Reference)	2
C315 (Stock)	10
C730	1
C610	1
DCA Codes	
260	1
205	1
External	
Chief, Studies, Analysis and Gaming Agency, Room ID943, The Pentagon, Washington, D. C. 20301	5
Director, Weapons System Evaluation Group, 400 Army Navy Drive, Washington, D. C. 20305	1
Commander in Chief, Pacific, APO San Francisco 96588	1
United States Commander in Chief, Europe, APO New York 09128	1
Chief of Staff, U. S. Army, Room 3D671, The Pentagon, Washington, D. C. 20310	1
Chief of Staff, U. S. Air Force, Room 4D944, The Pentagon, Washington, D. C. 20330	1
Chief of Naval Operations, Room 4D578, The Pentagon, Washington, D. C. 20380	1
Commandant of the Marine Corps, Room 3229, Navy Annex, Washington, D. C. 20380	1
Commander in Chief, Strategic Air Command, Offutt AFB, Nebraska 68113	1
Defense Documentation Center, Cameron Station, Alexandria, Virginia 22314	2
	32